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REMARKS

In the Office Action, the Examiner indicated that claims 1 through 21 are pending in the application and the Examiner rejected all claims.

Claim Rejections, 35 U.S.C. §102

In item 5 on page 2 of the Office Action, the Examiner rejected claims 1-21 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,687,732 to Bector et al. ("Bector").

The Present Invention

The present invention is directed to an improved Network Address Translation and Port Mapping (NAT) method and system which overcomes the traffic bottleneck problems encountered in conventional NAT systems and methods. The improved NAT system configures multiple servers (known in the art as "origin servers") to perform outbound translations on response packets prepared by the servers, so that the response packets can be sent to the clients directly without having to pass through the NAT machine. This solves the traffic bottleneck problems at the NAT machine.

Particularly, the improved NAT system includes a single NAT machine and a plurality of identical origin servers, each server being provided with an outbound translation module capable of performing outbound translations on response packets prepared by the server. The NAT machine provides translation instructions to the outbound translation module of each server. The translation instructions carry client information (e.g., client IP address, client port number, etc.)

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so that the response packet can be sent to an appropriate client based on the client information. Using the translation instructions, the server translates the response packets and transmits the translated response packets directly to the client, thereby bypassing the NAT machine.

By configuring the servers, instead of the NAT machine, to perform outbound translations on the response packets, the traffic bottleneck problem and the capacity limitation imposed by the conventional NAT machines are eliminated and the overall operation and performance of the system is improved.

U.S. Patent No. 6,687,732 to Bector et al.

U.S. Patent No. 6,687,732 to Bector et al. ("Bector") teaches an Internet Protocol (IP) driver that includes a mechanism that enables a server to bypass packets associated with certain destinations, sources, or a combination of the two based upon their IP address. Bector teaches, as prior art, the concept of "proxy interception" whereby a proxy processing engine, handles loads that are initially directed to an Internet server. Bector improves upon this process by providing a system, mechanism and method for dynamically determining whether to dispatch traffic to the local proxy server, or to bypass the proxy server to send the traffic to a remote server or to the original target origin server.

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The invention of Bector includes translation tables that enable the proxy server to be bypassed as part of the request from the client. The logic described in the Bector patent deals with decisions being made on the request side of traffic and is focused on eliminating redundant or useless processing exclusively on the way to the request destination, based on rules. The logic is stored on the NAT machine and/or the proxy server. The teachings of Bector are based on logic stored in the NAT, which lies in the request path between the client (on one side) and the proxy and origin servers (on the other side). A determination is made if the translation instructions are available on the proxy. If so, that is the destination chosen. Otherwise, the request is sent to the origin server.

The Cited Prior Art Does Not Anticipate the Claimed Invention

The MPEP and case law provide the following definition of anticipation for the purposes of 35 U.S.C. §102:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."
MPEP §2131 citing *Verdegaal Bros. v. Union Oil Company of California*, 814 F.2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987)

The Examiner Has Not Established a *prima facie* Case of Anticipation

Independent claim 1 includes recitation of a method of processing a client packet from a client in a NAT system including a NAT machine and a plurality of servers, the method comprising the steps of "preparing a response packet responsive to the client packet; performing, by one of the servers, a translation operation on the response packet to produce a translated

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response packet; and transmitting the translated response packet directly to the client, thereby bypassing the NAT machine." Independent claims 9 and 15 recite essentially identical claim language in apparatus (system) and computer program product claim language, respectively. This allows the response packets to be sent to the client directly without having to pass through the NAT machine.

Bector is concerned with deciding which target server should handle incoming traffic from a client. Bector describes one scenario where in some cases traffic is directed to a proxy server and in other cases traffic is directed to bypass the origin server and be routed directly to an origin server. When traffic is directed to the proxy server, the proxy server itself may need to issue an additional new connection to an origin server to get information it requires to satisfy the request. Bector teaches the avoidance of the need for the additional connection by sending traffic directly to the origin server when it knows the proxy will open an additional connection. This is how Bector can "bypass" certain servers at the TCP/IP connection level.

To better understand the differences between Bector and the claimed invention, consider the traffic flow of individual packets within each TCP/IP connection. Once Bector makes its server selection decision, all inbound and outbound packets flow over the exact same path. For example:

- 1) if Bector chooses to go directly to an origin server, inbound packets flow from the client to the NAT machine, to the origin server. Outbound packets flow over exactly the same reverse path, from the origin server to the NAT machine, to the client.

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2) If Bector chooses to go to a proxy server, inbound packets flow from the client to the NAT machine, to the proxy server. Outbound packets again flow over exactly the same reverse path, from the proxy server to the NAT machine, to the client.

3) If Bector has chosen to go to the proxy server, and if the proxy server needs information from an origin server, the proxy server opens a new connection from the proxy server to the origin server. Over this new connection, inbound packets flow from the proxy server to the origin server, and outbound packets flow from the origin to proxy. Again this is over the same path in both directions. In any case, the outbound (response) packet still must go back to the NAT machine before being routed to the client.

Bector teaches how NAT connections may "bypass" servers which will have to do more work than others, but all such packets flow over the same paths. Packets within a connection are not "bypassing" any network elements.

By way of contrast, the present claimed invention intentionally changes the path of outbound packet traffic by "bypassing the NAT machine." The outbound packets completely bypass the NAT machine and go "directly to the client."

Bector contains no teaching of a server performing "a translation operation on the response packet to produce a translated response packet; transmitting the translated response packet directly to the client, thereby bypassing the NAT machine." As noted above, these elements are specifically claimed in each of the independent claims. Accordingly, each of the independent claims, and all claims depending therefrom, patentably define over Bector and are in condition for allowance. Without any such teaching in Bector, the claimed invention patentably defines over

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Bector. Further, nothing in Bector suggests this aspect of the claimed invention. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-21 under 35 U.S.C. §102 based on Bector.


Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 09-0461.

Respectfully submitted

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